WHAT IS CLAIMED IS:

1. A method for monitoring a system including a plurality of subcomponents, comprising:

providing an implementation of a plurality of subcomponent finite state machines for subcomponents of the system, wherein each subcomponent finite state machine indicates output values for combinations of input state values related to states in the subcomponent;

providing an implementation of a system finite state machine having output values for combinations of the output values from the subcomponent finite state machines; and

for each subcomponent finite state machine, determining the output value by:

(i) determining the input state values of the subcomponent; and

(ii) processing the subcomponent finite state machine with the determined input state values to determine the subcomponent output value; and

processing the system finite state machine with the determined subcomponent output values to determine the system output value.

2. The method of claim 1, wherein the input states comprise health related parameters of the subcomponents.

3. The method of claim 1, wherein the output values for the subcomponents indicate health values of the subcomponents and wherein the system output value indicates a health value of the system.

4. The method of claim 1, wherein the subcomponent and system finite state machines are processed by a program, wherein determining the input state values of at least one of the subcomponents comprises querying the subcomponents for the input state values, wherein the program processes the determined subcomponent values and subcomponent finite state machines to determine the subcomponent output values, and

wherein the program processes the subcomponent output values and the system finite state machine to determine the system output value.

5. The method of claim 1, wherein at least one subcomponent determines the input state values and processes the subcomponent finite state machine and the input state values to determine the subcomponent output value, wherein a program queries the at least one subcomponent to determine the subcomponent output value for that queried subcomponent, and wherein the program processes the system finite state machine and subcomponent output values to determine the system output value.

6. The method of claim 1, wherein the system comprises a storage device and wherein the subcomponents comprise at least one of a power supply, storage controller, storage units, network adaptor, and midplane.

7. The method of claim 1, wherein a network is comprised of a plurality of systems, further comprising:

providing an implementation of a network finite state machine having output values for combinations of the output values from system finite state machines, wherein each system includes one system finite state machines and at least one subcomponent finite state machine to determine the system output value;

determining the system output values from each system finite state machine; and

processing the network finite state machine with the determined system output values to determine the network output value.

8. The method of claim 1, wherein there are at least three possible output values, indicating a good, bad and at least one degraded state.

9. A method for implementing an administrative policy for a device having at least one component, comprising:

providing an implementation of an administrative policy finite state machine indicating at least one action to perform for combinations of input administrative and operational states of the component in the device;

determining the input administrative and operational states for the component; and

processing the administrative policy state machine with the determined input administrative and operational states to determine at least one action to perform.

10. The method of claim 9, wherein the input administrative and operational states include a current and previous administrative and operational states of the component, and wherein the administrative and operational states comprise offline or online.

11. The method of claim 9, wherein the at least one action indicates to either clear an alert or generate an alert.

12. The method of claim 9, wherein the at least one action is capable of indicating to generate an event indicating operations to perform.

13. The method of claim 9, wherein the device comprises a switch and wherein the components comprise ports on the switch.

14. The method of claim 1, wherein the at least one action indicates to take no action.

15. A method, comprising:

generating implementations of a plurality of subcomponent finite state machine for subcomponents of a system, wherein each subcomponent finite state machine indicates output values for combinations of input state values related to states in the subcomponent; and

generating an implementation of a system finite state machine having output values for combinations of the subcomponent output values from the subcomponent finite state machines, wherein each subcomponent finite state machine is processed with determined input state values for the subcomponent state machine to determine the subcomponent output value, and wherein the system finite state machine is processed with the determined subcomponent output values to determine the system output value.

16. The method of claim 15, wherein generating the subcomponent and system finite state machines, comprises:

generating a plurality of subcomponent truth tables for the subcomponents, wherein each subcomponent truth table has an observed output value for each combination of input state values related to states in the subcomponent;

generating a system truth table having an observed output value for each combination of the subcomponent output values from the subcomponent finite state machines;

processing the subcomponent truth tables to generate the subcomponent finite state machines; and

processing the system truth table to generate the system finite state machine.

17. The method of claim 15, wherein generating the subcomponent and system finite state machines, comprises:

generating a plurality of subcomponent truth tables for the subcomponents, wherein each subcomponent truth table has an observed output value for each combination of input state values related to states in the subcomponent;

generating one subcomponent K-Map for each subcomponent truth table to organize the subcomponent output values for different input state value combinations;

generating a system truth table having an observed output value for each combination of subcomponent output values from the subcomponent finite state machines;

generating a system K-Map for the system truth table to organize the system output values for different input subcomponent output value combinations;

processing the subcomponent K-Maps to generate the subcomponent finite state machines; and

processing the system K-Map to generate the system finite state machine.

18. The method of claim 15, wherein the system and subcomponent output values are capable of indicating good, bad and at least one degradation level.

19. A system, comprising:

(a) a plurality of subcomponents;

(b) a computer readable medium including:

(i) a representation of a plurality of subcomponent finite state machines for subcomponents of the system, wherein each subcomponent finite state machine indicates output values for combinations of input state values related to states in the subcomponent; and

(ii) a representation of a system finite state machine having output values for combinations of the output values from the subcomponent finite state machines; and

(c) code capable of being executed in the system to perform:

(i) for each subcomponent finite state machine, determining the output value by:

(a) determining the input state values of the subcomponent; and

(b) processing the subcomponent finite state machine with the determined input state values to determine the subcomponent output value; and

(ii) processing the system finite state machine with the determined subcomponent output values to determine the system output value.

20. The system of claim 19, wherein the input states comprise health related parameters of the subcomponents.

21. The system of claim 19, wherein the output values for the subcomponents indicate health values of the subcomponents and wherein the system output value indicates a health value of the system.

22. The system of claim 19, wherein the code comprises a program executing external to the subcomponents, wherein determining the input state values of at least one of the subcomponents comprises querying the subcomponents for the input state values, wherein the program processes the determined subcomponent values and subcomponent finite state machines to determine the subcomponent output values, and wherein the program processes the subcomponent output values and the system finite state machine to determine the system output value.

23. The system of claim 19, wherein the code comprises at least one program within at least one subcomponent and one program external to the subcompoennts, wherein the at least one program within the subcomponent determines the input state values and processes the subcomponent finite state machine and the input state values to determine the subcomponent output value, wherein the program external to the subcompoennts queries the at least one subcomponent to determine the subcomponent output value for that queried subcomponent, and wherein the program external to the subcomponents processes the system finite state machine and subcomponent output values to determine the system output value.

24. The system of claim 19, wherein the system comprises a storage device and wherein the subcomponents comprise at least one of a power supply, storage controller, storage units, network adaptor, and midplane.

25. The system of claim 19, wherein the system is included in a network connecting a plurality of systems, wherein the systems in the network include system finite state machines to determine system output values, further comprising:

a representation of a network finite state machine in the computer readable medium having output values for combinations of the output values from system finite state machines, wherein each system includes one system finite state machines and at least one subcomponent finite state machine to determine the system output value; and

wherein the code is further capable of being executed to perform:

(i) determining the system output values from each system finite state machine; and

(ii) processing the network finite state machine with the determined system output values to determine the network output value.

26. A device, comprising:

(a) at least one component;

(b) a computer readable medium including a representation of an administrative policy finite state machine indicating at least one action to perform for combinations of input administrative and operational states of the component in the device; and

(c) code capable of being executed to perform:

(i) determining the input administrative and operational states for the component; and

(ii) processing the administrative policy state machine with the determined input administrative and operational states to determine at least one action to perform with respect to the component.

27. The device of claim 26, wherein the input administrative and operational states include a current and previous administrative and operational states of the component, and wherein the administrative and operational states comprise offline or online.

28. The device of claim 26, wherein the at least one action indicates to either clear an alert or generate an alert.

29. The device of claim 26, wherein the at least one action is capable of indicating to generate an event indicating operations to perform.

30. The device of claim 26, wherein the device comprises a switch and wherein the components comprise ports on the switch.

31. An article of manufacture for monitoring a system including a plurality of subcomponents, wherein the article of manufacture causes operations to be performed, the operations comprising:

providing an implementation of a plurality of subcomponent finite state machines for subcomponents of the system, wherein each subcomponent finite state machine indicates output values for combinations of input state values related to states in the subcomponent;

providing an implementation of a system finite state machine having output values for combinations of the output values from the subcomponent finite state machines; and

for each subcomponent finite state machine, determining the output value by:

(i) determining the input state values of the subcomponent; and

(ii) processing the subcomponent finite state machine with the determined input state values to determine the subcomponent output value; and

processing the system finite state machine with the determined subcomponent output values to determine the system output value.

32. The article of manufacture of claim 31, wherein the input states comprise health related parameters of the subcomponents.

33. The article of manufacture of claim 31, wherein the output values for the subcomponents indicate health values of the subcomponents and wherein the system output value indicates a health value of the system.

34. The article of manufacture of claim 31, wherein the subcomponent and system finite state machines are processed by a program, wherein determining the input state values of at least one of the subcomponents comprises querying the subcomponents for the input state values, wherein the program processes the determined subcomponent values and subcomponent finite state machines to determine the subcomponent output values, and wherein the program processes the subcomponent output values and the system finite state machine to determine the system output value.

35. The article of manufacture of claim 31, wherein at least one subcomponent determines the input state values and processes the subcomponent finite state machine and the input state values to determine the subcomponent output value, wherein a program queries the at least one subcomponent to determine the subcomponent output value for that queried subcomponent, and wherein the program processes the system finite state machine and subcomponent output values to determine the system output value.

36 The article of manufacture of claim 31, wherein the system comprises a storage device and wherein the subcomponents comprise at least one of a power supply, storage controller, storage units, network adaptor, and midplane.

37. The article of manufacture of claim 31, wherein a network is comprised of a plurality of systems, wherein the operations further comprise:

providing an implementation of a network finite state machine having output values for combinations of the output values from system finite state machines, wherein each system includes one system finite state machines and at least one subcomponent finite state machine to determine the system output value;

determining the system output values from each system finite state machine; and

processing the network finite state machine with the determined system output values to determine the network output value.

38. The article of manufacture of claim 31, wherein there are at least three possible output values, indicating a good, bad and at least one degraded state.

39. An article of manufacture for implementing an administrative policy for a device having at least one component, wherein the article of manufacture causes operations to be performed, the operations comprising:

providing an implementation of an administrative policy finite state machine indicating at least one action to perform for combinations of input administrative and operational states of the component in the device;

determining the input administrative and operational states for the component; and

processing the administrative policy state machine with the determined input administrative and operational states to determine at least one action to perform.

40. The article of manufacture of claim 39, wherein the input administrative and operational states include a current and previous administrative and operational states of the component, and wherein the administrative and operational states comprise offline or online.

41. The article of manufacture of claim 39, wherein the at least one action indicates to either clear an alert or generate an alert.

42. The article of manufacture of claim 39, wherein the at least one action is capable of indicating to generate an event indicating operations to perform.

43. The article of manufacture of claim 39, wherein the device comprises a switch and wherein the components comprise ports on the switch.

44. The article of manufacture of claim 39, wherein the at least one action indicates to take no action.

45. An article of manufacture for causing operations to be performed, the operations comprising:

generating implementations of a plurality of subcomponent finite state machine for subcomponents of a system, wherein each subcomponent finite state machine indicates output values for combinations of input state values related to states in the subcomponent; and

generating an implementation of a system finite state machine having output values for combinations of the subcomponent output values from the subcomponent finite state machines, wherein each subcomponent finite state machine is processed with determined input state values for the subcomponent state machine to determine the subcomponent output value, and wherein the system finite state machine is processed with the determined subcomponent output values to determine the system output value.

46. The article of manufacture of claim 45, wherein generating the subcomponent and system finite state machines, comprises:

generating a plurality of subcomponent truth tables for the subcomponents, wherein each subcomponent truth table has an observed output value for each combination of input state values related to states in the subcomponent;

generating a system truth table having an observed output value for each combination of the subcomponent output values from the subcomponent finite state machines;

processing the subcomponent truth tables to generate the subcomponent finite state machines; and

processing the system truth table to generate the system finite state machine.

47. The article of manufacture of claim 45, wherein generating the subcomponent and system finite state machines, comprises:

generating a plurality of subcomponent truth tables for the subcomponents, wherein each subcomponent truth table has an observed output value for each combination of input state values related to states in the subcomponent;

generating one subcomponent K-Map for each subcomponent truth table to organize the subcomponent output values for different input state value combinations;

generating a system truth table having an observed output value for each combination of subcomponent output values from the subcomponent finite state machines;

generating a system K-Map for the system truth table to organize the system output values for different input subcomponent output value combinations;

processing the subcomponent K-Maps to generate the subcomponent finite state machines; and

processing the system K-Map to generate the system finite state machine.

48. The article of manufacture of claim 45, wherein the system and subcomponent output values are capable of indicating good, bad and at least one degradation level.